IN THE CLAIMS

Cancel Claim 10.

1. (original) A hard disk drive, comprising:

a housing;

a disk mounted to the housing and being rotatable relative to the housing, the disk defining an axis of rotation and a radial direction relative to the axis, and the disk having a downstream side wherein air flows away from the disk, and an upstream side wherein air flows toward the disk;

an actuator mounted to the housing and being movable relative to the disk, the actuator having a head for reading data from and writing data to the disk;

a bypass channel formed in the housing for directing air flow generated by rotation of the disk; and

a diffuser located in the bypass channel adjacent to a downstream side of the disk and having a plurality of air diverter fins that protrude radially with respect to the disk, such that the diffuser reduces drag from the disk due to disk wake in the bypass channel.

2. (original) The hard disk drive of claim 1, wherein the air diverter fins of the diffuser are triangular in shape, including a leading tip and edges that diverge from the leading tip toward the diffuser.

3. (original) The hard disk drive of claim 2, wherein the diffuser has air foils and the air diverter fins protrude from surfaces of the airfoils toward a hub of the disk.

4. (original) The hard disk of claim 3, wherein the edges of the air diverter fins are perpendicular to a recording surface of the disk.

5. (original) The hard disk drive of claim 2, wherein one of the edges of each of the air diverter fins is longer than another one of the edges of the air diverter fins and has a tapered profile that is not as blunt as a profile of said another one of the edges.

6. (original) The hard disk drive of claim 3, wherein each of the air diverter fins has an axial thickness that is equal to an axial thickness of the airfoils.

7. (original) The hard disk drive of claim 1, wherein the diffuser further comprises an air filter for filtering the air flowing through the housing.

8. (original) The hard disk drive of claim 1, wherein the bypass channel is located between an outer perimeter of the housing and the actuator, such that the bypass channel completely circumscribes the actuator.

9. (original) The hard disk drive of claim 1, wherein the diffuser has an air foil having a generally planar orientation in the radial direction and being axially aligned with a planar orientation of the disk, the air foil also having a maximum axial thickness that is less than or equal to an axial thickness of the disk.

10. (cancelled)

11. (original) The hard disk drive of claim 1, wherein the bypass channel is a full bypass that extends from the downstream side of the disk to an upstream side of the disk.

12. (original) A hard disk drive, comprising:

a housing;

a disk pack mounted to the housing and having a plurality of disks that are rotatable relative to the housing, the disk pack defining an axis of rotation and a radial direction relative to the axis, and the disk pack having a downstream side wherein air flows away from the disks, and an upstream side wherein air flows toward the disks;

an actuator mounted to the housing and being movable relative to the disk pack, the actuator having a plurality of heads for reading data from and writing data to the disks;

a bypass channel formed in the housing for directing the air flow generated by rotation of the disks from the downstream side of the disk pack to the upstream side of the disk pack;

a diffuser located in the bypass channel adjacent to the downstream side of the disk pack, the diffuser having a plurality of airfoils and integrally formed air diverter fins radially oriented with respect to the disks, such that the diffuser reduces air flow drag from the disks due to disk wake in the bypass channel; and

a contraction located in the bypass channel adjacent to the upstream side of the disk pack and offset upstream from the disks in the radial direction, such that the contraction re-accelerates a slow bypass air flow from the contraction to the disks to provide efficient energy conversion for the air flow from pressure energy to kinetic energy prior to merging the slow bypass air flow with air flow around the disks.

13. (original) The hard disk drive of claim 12, wherein the air diverter fins of the diffuser are triangular in shape, including a leading tip and edges that diverge from the leading tip toward the diffuser.

14. (original) The hard disk drive of claim 13, wherein the air diverter fins protrude from surfaces of the airfoils toward a hub of the disk, and the edges of the air diverter fins are perpendicular to recording surfaces of the disks.

15. (original) The hard disk drive of claim 13, wherein one of the edges of each of the air diverter fins is longer than another one of the edges of the air diverter fins and has a tapered profile that is not as blunt as a profile of said another one of the edges.

16. (original) The hard disk drive of claim 12, wherein each of the air diverter fins has an axial thickness that is equal to an axial thickness of the airfoils.

17. (original) The hard disk drive of claim 12, wherein each of the diffuser and the contraction further comprise an air filter for filtering the air flowing through the bypass channel.

18. (original) The hard disk drive of claim 12, wherein the bypass channel is located between an outer perimeter of the housing and the actuator, such that the bypass channel completely circumscribes the actuator.

19. (original) The hard disk drive of claim 12, wherein both the diffuser and the contraction have a plurality of airfoils that are axially apart from each other, respectively, in the axial direction, each of the airfoils having a generally planar orientation in the radial direction and being axially aligned with one of the disks, the airfoils also having a maximum axial thickness that is less than or equal to an axial thickness of said one of the disks.

20. (original) The hard disk drive of claim 12, wherein each of the airfoils of the diffuser has a leading edge with a flat transverse surface extending in the axial direction that is located immediately adjacent to said one of the disks and is substantially perpendicular to a planar orientation of said one of the disks, and wherein each of the airfoils of the contraction has a trailing edge located immediately adjacent to said one of the disks, and a leading edge with a rounded surface that is located opposite the trailing edge.